

Preliminary Amendment

Applicant: Rao Rajashekhar et al.

Serial No.: Unknown

(Priority Application No. DE 103 45 489.6)

(International Application No. PCT/EP2004/052128)

Filed: Herewith

(Priority Date: September 30, 2003)

(International Filing Date: September 10, 2004)

Docket No.: I438.113.101

Title: DEVICE FOR UTILIZATION WITH THE SYNCHRONIZATION OF CLOCK SIGNALS, AND CLOCK SIGNAL SYNCHRONIZING METHOD (As Amended)

IN THE CLAIMS

Please cancel claims 1-8 without prejudice.

Please add claims 9-29 as follows:

WHAT IS CLAIMED IS:

1-8. (Cancelled)

9. (New) An apparatus for utilization with the synchronization of clock signals, comprising:

a delay device with a variably controllable delay time into which a clock signal, or a signal obtained therefrom, is input, charged with the variably controllable delay time, and output as a delayed clock signal; and

a device configured to determine whether a clock edge of the delayed clock signal output by the delay device, or of a signal obtained therefrom, lies within a predetermined time window before a corresponding clock edge of the clock signal, or of the signal obtained therefrom.

10. (New) The apparatus according to claim 9, comprising wherein:

if it is determined that the clock edge of the delayed clock signal output by said delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom, said device sends a determination signal to said delay device.

11. (New) The apparatus according to claim 10, comprising wherein the delay device changes from a first to a second mode in reaction to the determination signal.

12. (New) The apparatus according to claim 11, comprising wherein:

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if the device determines that the clock edge of the delayed clock signal output by said delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom, the signal delay time caused by said delay device is decremented or incremented in smaller time steps than prior to the determination.

13. (New) The apparatus according to claim 12, comprising a second delay device provided in the determination device, configured to determine the duration of the time window as a function of the frequency of the clock signal.

14. (New) The apparatus according to claim 9, comprising wherein:

if the device determines that the clock edge of the delayed clock signal output by said delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom, the signal delay time caused by said delay device is decremented or incremented in smaller time steps than prior to the determination.

15. (New) The apparatus according to claim 9, comprising wherein the duration of the time window is chosen as a function of the frequency of the clock signal.

16. (New) An apparatus for utilization with the synchronization of clock signals, comprising:

a delay device with a variably controllable delay time into which a clock signal, or a signal obtained therefrom, is input, charged with the variably controllable delay time, and output as a delayed clock signal;

a device configured to determine whether a clock edge of the delayed clock signal output by the delay device, or of a signal obtained therefrom, lies within a predetermined

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time window before a corresponding clock edge of the clock signal, or of the signal obtained therefrom, wherein if it is determined that the clock edge of the delayed clock signal output by said delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom, said device sends a determination signal to said delay device, and wherein the delay device changes from a first to a second mode in reaction to the determination signal; and

a second device for keeping the delay device in the second mode after it has been determined that the clock edge of the delayed clock signal output by said delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom.

17. (New) The apparatus according to claim 16, comprising wherein the delay device changes from a first to a second mode in reaction to the determination signal.

18. (New) The apparatus according to claim 17, comprising wherein:

if the device determines that the clock edge of the delayed clock signal output by said delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom, the signal delay time caused by said delay device is decremented or incremented in smaller time steps than prior to the determination.

19. (New) The apparatus according to claim 18, comprising wherein the duration of the time window is chosen as a function of the frequency of the clock signal.

20. (New) The apparatus of claim 19, comprising:

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a delay device provided in the determination device, configured to determine the duration of the time signal.

21. (New) The apparatus of claim 20, comprising wherein the delay device is switched automatically.

22. (New) An apparatus for utilization with the synchronization of clock signals, comprising:

a delay device with a variably controllable delay time that can be decremented or incremented in variably controllable time steps, into which a clock signal, or a signal obtained therefrom, is input, charged with the variably controllable delay time that can be decremented or incremented in variably controllable time steps, and output as delayed clock signal;

a device configured to determine whether a clock edge of the delayed clock signal output by said delay device, or of a signal obtained therefrom, lies within a predetermined time window before a corresponding clock edge of the clock signal, or of the signal obtained therefrom; and

wherein the apparatus is designed and equipped such that, if the device determines that the clock edge of the delayed clock signal output by the delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom, the signal delay time caused by the delay device is decremented or incremented in smaller time steps, and thus more slowly, than prior to the determination; and

wherein a duration of the time window is chosen as a function of the frequency of the clock signal.

23. (New) The apparatus of claim 22, comprising:

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a frequency determination device configured to determine the duration of the time window.

24. (New) The apparatus according to claim 23, comprising wherein:

if it is determined that the clock edge of the delayed clock signal output by said delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom, said device sends a determination signal to said delay device.

25. (New) The apparatus according to claim 24, comprising wherein the delay device changes from a first to a second mode in reaction to the determination signal.

26. (New) The apparatus according to claim 25, comprising wherein:

if the device determines that the clock edge of the delayed clock signal output by said delay device, or of the signal obtained therefrom, lies within the predetermined time window before the corresponding clock edge of the clock signal, or of the signal obtained therefrom, the signal delay time caused by said delay device is decremented or incremented in smaller time steps than prior to the determination.

27. (New) The apparatus according to claim 26, comprising wherein the duration of the time window is chosen as a function of the frequency of the clock signal, in particular a delay device provided in the determination device is – for this purpose – correspondingly switched automatically.

28. (New) A clock signal synchronizing method comprising:

charging a clock signal or a signal obtained therefrom with a variably controllable delay time, so that a delayed clock signal is obtained; and

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determining whether a clock edge of the delayed clock signal, or of a signal obtained therefrom, lies within a predetermined time window before a corresponding clock edge of the clock signal, or of the signal obtained therefrom.

29. (New) An apparatus for utilization with the synchronization of clock signals, comprising:

delay means for providing a variably controllable delay time into which a clock signal, or a signal obtained therefrom, is input, charged with the variably controllable delay time, and output as a delayed clock signal; and

means for determining whether a clock edge of the delayed clock signal output by the delay device, or of a signal obtained therefrom, lies within a predetermined time window before a corresponding clock edge of the clock signal, or of the signal obtained therefrom.